

WHAT IS CLAIMED IS:

1. A front end module for wireless network system comprising :

a transmitting/receiving switch;

a band-pass filter connected to the transmitting/receiving switch for receiving wanted
5 signals and rejecting undesired signals;

a balun connected to the band-pass filter for transferring the wanted signals from
unbalance to balance;

a power amplifier for raising the power of signals to be transmitted; and

a low-pass filter connected to the power amplifier for rejecting the spurious signals of
10 the signals to be transmitted;

wherein the band-pass filter, the balun, and the low-pass filter lie inside a plurality of
low temperature co-fired ceramic substrates while the transmitting/receiving switch and the
power amplifier lie on a surface layer of the plurality of low temperature co-fired ceramic
substrates .

15 2. The front end module for wireless network system of claim 1, wherein the
band-pass filter, the balun, and the low-pass filter are formed by a patterning process.

3. The front end module for wireless network system of claim 1, wherein the
transmitting/receiving switch and the power amplifier are formed by a surface mounting
technology (SMT).

20 4. The front end module for wireless network system of claim 1, wherein there are a
plurality of electrically conductive layers and a plurality of dielectric layers inside the low
temperature co-fired ceramic substrates and there are metallic via holes formed between the
electrically conductive layers.

5. The front end module for wireless network system of claim 4, wherein at least a
25 GaAs switch and a RC circuit are included in the transmitting/receiving switch while at least

an LC circuit is included in the band-pass filter, the balun, and the low-pass filter.

6. The front end module for wireless network system of claim 5, wherein capacitors and inductances of the RC circuit and LC circuit are formed in the electrically conductive layers by patterning.

5 7. The front end module for wireless network system of claim 6, wherein the capacitors formed in the electrically conductive layers are performed to be overlapping and the inductances formed in the electrically conductive layers are performed to be spiral.

8. The front end module for wireless network system of claim 5, wherein there are two surface electrodes formed on the surface layer, and resistors of the RC circuit are
10 formed between the surface electrodes.

9. The front end module for wireless network system of claim 8, wherein the resistors of the RC circuit are formed by an ink-printing process.

10. The front end module for wireless network system of claim 8, wherein the resistors of the RC circuit are formed on ink thin-film with impedance.

15 11. The front end module for wireless network system of claim 8, wherein the RC circuit and the LC circuit are connected to the surface electrodes through the metallic via holes formed between the electrically conductive layers.

12. The front end module for wireless network system of claim 5, wherein there are a plurality active components formed on the surface layer.

20 13. The front end module for wireless network system of claim 12, wherein the RC circuit and the LC circuit are connected to the active components through the metallic via holes formed between the electrically conductive layers.

14. The front end module for wireless network system of claim 1, wherein a receiving antenna connects with the transmitting/receiving switch for receiving the wanted
25 signals and a transmitting antenna connects with the transmitting/receiving switch for

transmitting the signals to be transmitted excluding the spurious signals.

15. The front end module for wireless network system of claim 1, wherein the balun is further connected to a receiving end and the power amplifier is further connected to a transmitting end.